

1 Claims Rejected under 35 U.S.C § 102

2 The Examiner has rejected Claim 71 as being anticipated by JP 63221187 (a Japanese patent
3 application; hereafter referred to as JP '187), which discloses making and using a *virgin* synthetic
4 fiber treated with titanium dioxide as an absorbent for oil. Applicants respectfully disagree with the
5 rejection, particularly in view of the amendment to Claim 71, for the following reasons.

6 Claim 71 has been amended to recite the step of segregating textile scrap before shredding the
7 textile scrap, in order to control the ratio of natural fibers to synthetic fibers in the resulting
8 absorbent. Such a step was previously recited in dependent Claim 64.

9 JP '187 *does not* disclose sorting textile waste to separate natural fibers from synthetic fibers,
10 or shredding textile waste to obtain the synthetic fibers to be used to absorb oil. Significantly, JP
11 '187 describes modifying conventional virgin fiber manufacturing to incorporate a filler into a
12 synthetic fiber. JP '187 *does not* teach or suggest obtaining synthetic fibers from any type of
13 recycling process. Therefore JP '187 cannot anticipate applicants' claimed method. Applicants
14 previously traversed the rejection of Claim 71 on similar grounds, in the Amendment and Request for
15 Reconsideration dated June 28, 2006. Unfortunately, the current Office Action maintains the
16 rejection of Claim 71 as being anticipated by JP '187, without answering the substance of applicants'
17 traversal. Applicants respectfully request the Examiner to articulate some basis for concluding that
18 JP '187 discloses sorting and shredding textile waste to generate the synthetic fibers used to absorb
19 oil, or withdraw the rejection.

20 Claims Rejected under 35 U.S.C § 103 over Mendes in View of JP '187 and DE '899

21 The Examiner has rejected Claims 57, 60, 61, 64-70, and 71 as being obvious over U.S.
22 Patent No. 5,779,392 (Mendes) in view of JP '187 and U.S. Patent No. 5,308,497 (O'Donnell). The
23 Examiner notes that Mendes discloses using synthetic fibers as an absorbent material, but admits that
24 Mendes does not teach or suggest using delustered or recycled fibers. The Examiner indicates that JP
25 '187 discloses using delustered synthetic fibers as an absorbent material, where titanium dioxide is
26 used as the delustering agent. The Examiner further notes that O'Donnell discloses that woven and
27 non-woven materials can be shredded to generate shoddy, which can then be processed into an
28 absorbent. The Examiner argues that it would have been obvious to one of ordinary skill in the art to
29 use shoddy as disclosed by O'Donnell, as a source for the synthetic fiber absorbent as disclosed by
30 Mendes and JP '187. Applicants respectfully disagree for the following reasons.

1 Significantly, O'Donnell does not teach or suggest that shoddy can be used as an absorbent
2 material *without first being coated with a cross-linked resin*. O'Donnell appears to suggest that the
3 fibers are not suitable as an absorbent themselves, but simply act as a substrate or carrier for the
4 cross-linked resin, which functions as the absorbent. Thus, combining the cited art in the manner
5 suggested by the Examiner would result in generating shoddy, treating the shoddy with a resin, curing
6 the resin/shoddy mixture, pickering or grinding the treated shoddy (see O'Donnell, first paragraph of
7 column 4), and then using the treated shoddy as an absorbent for oil as disclosed by Mendes or
8 JP '187. Such a method is not equivalent to the methods recited in independent Claims 57 and 71,
9 because each of those claims recites sorting textile waste to control an amount of natural fibers
10 present in the absorbent, and neither claim requires treating the fibers with a resin before using the
11 fibers as an absorbent.

12 Significantly, one crucial element missing from any of the art cited by the Examiner is a
13 teaching that prior art techniques for generating shoddy from textile waste should be modified to
14 control an amount of natural fiber present in the resulting shoddy. Such a sorting process will add
15 expense to the shoddy manufacturing process, and the cited art does not teach or suggest that any
16 benefit would accrue from such an additional processing step. It is illogical to assert that
17 complicating a known process without any expectation of a benefit would have been obvious.

18 The only art cited by the Examiner that teaches or suggests using recycled fibers as an
19 absorbent is O'Donnell and the previously cited German reference (DE '899). DE '899 discloses that
20 recycled *natural* fibers (*not recycled synthetic fibers*) can be beneficially employed as an absorbent
21 for oil. Indeed, DE '899 specifically teaches that waste should be sorted to prevent synthetic material
22 from contaminating natural fibers, explicitly teaching that synthetic materials are undesirable in a
23 recycled fiber waste stream that can be used as an absorbent or fuel. O'Donnell teaches that synthetic
24 fibers, natural fibers, and mixtures thereof (preferably 50% natural fibers and 40% synthetic fibers,
25 column 2, lines 23-34) can be used as an absorbent, *but only* after having been treated with a cross-
26 linking resin. The cited art does not recognize that mixtures of synthetic and natural fibers, where the
27 mixture comprises predominantly synthetic fibers, can be used as an absorbent, without the addition
28 of the resin as taught by O'Donnell. Applicants' method employs a sorting process to provided the
29 requisite absorption properties and thus, does not require O'Donnell's resin treating step. The cited
30 art simply does not teach or suggest such a modification.

1 Finally, the previously submitted declaration by Jerry Brownstein indicates that there exists in
2 the textile industry a long felt need for alternative uses for synthetic fabric scrap and synthetic fiber
3 scrap. While O'Donnell offered a potential use for shoddy, it appears that the additional treatment
4 required by O'Donnell (coating the shoddy with a resin, curing the resin, and then additional grinding
5 or pickering of the treated shoddy) increases the complexity and cost of generating an absorbent from
6 shoddy to the point that O'Donnell's technique does not result in a economically beneficial
7 alternative use for shoddy. Significantly, applicants' claimed method of pre-sorting (to limit the
8 amount of natural fiber) and then shredding textile waste enables the shredded fiber to be used as an
9 effective absorbent *without* the additional resin coating and processing steps required by O'Donnell's
10 technique, making the applicants' claimed method a viable alternative use for poly shoddy.

11 Accordingly, Claims 57 and 71 are patentable over the references cited and the rejection of
12 these claims should be withdrawn. Because dependent claims are patentable for at least the same
13 reasons as the claims upon which they depend, each claim dependent upon Claims 57 and 71 are
14 patentable for at least the same reasons noted above. Therefore, the rejection of Claims 57, 60, 61,
15 65-70, and 71 (Claim 64 having been canceled) as being obvious in view of the above noted
16 combination of references should be withdrawn.

17 Claim 65 specifically recites that the sorting of the raw material (the textile waste) should be
18 carried out such that the resulting sorbent (i.e., the mass) comprises less than about 10% natural fiber.
19 The Examiner has not cited any reference that teaches or suggests that a recycled delustered synthetic
20 fiber based sorbent should comprise less than about 10% natural fiber. Mendes and JP '187 disclose
21 sorbent materials comprising 100% virgin synthetic fibers. DE '899 discloses a sorbent material
22 almost entirely comprising recycled organic fibers, with almost no synthetic fibers. O'Donnell
23 teaches that mixtures of synthetic and natural fibers can be used, *but only after having been coated*
24 *with a resin material to enhance their absorptive properties*. The Examiner has not provided any
25 reference that teaches or suggests a recycled sorbent material comprising less than about 10% natural
26 fibers, nor has the Examiner provided any evidence that such a sorbent material would have been
27 obvious to one of ordinary skill in the art. Applicants respectfully request the Examiner withdraw the
28 rejection of Claim 65, or provide a reference that teaches an equivalent recycled sorbent material, or
29 explain why an artisan of ordinary skill would have been motivated to modify a prior art recycled
30 sorbent material to achieve an equivalent of the method claimed by applicants.

Claims 67 and 70 recite specific steps related to shredding a synthetic fabric that can lead to a higher quality sorbent material. Based on applicants' understanding of the requirements of a desirable absorbent material, it is important for the synthetic fabric to be reduced as much as possible into synthetic fibers. "Flags" is an industry term for masses of fabric that have not been reduced to fiber. Claim 67 specifically recites the step of reducing the number of flags present in the shredded mass. Claim 70 specifically recites the step of removing larger pieces of synthetic fabric scrap and shredding the remaining synthetic fabric scrap (because the larger pieces of synthetic fabric scrap will not be reduced to fiber). Each of these steps represents a departure from the manner in which rag mills generally reduce fabric scrap to fiber. When rag mills reduce fabric scrap to fiber, the processing is performed either to produce poly shoddy that will be used to manufacture non-woven blankets to be used as sound deadening material for automobiles, and/or to reduce the volume of scrap material that will be disposed of as a solid waste. The presence of flags and larger pieces of scrap that have not been reduced into fiber does not present a significant problem for either of these uses of poly shoddy. However, applicants have recognized that the presence of flags and large pieces of scrap that have not been reduced to fiber will significantly reduce the absorption quality of the sorbent material. Significantly, while O'Donnell discloses grinding and pickering, O'Donnell is silent regarding flags and relatively larger pieces of scrap, and does not appear to teach or suggest that the amount of flags or larger pieces of scrap should be avoided. Significantly, O'Donnell specifically teaches that shoddy should be coated with a resin and can then be formed into an acoustic panel for automobiles, and that any waste from the panel can be ground up and used as an absorbent (column 6, lines 32-46). Thus, it appears that the shoddy disclosed by O'Donnell can include flags and larger pieces of fabric, as is conventional for shoddy used as a sound deadening material. The Examiner has not provided any evidence that it would have been obvious to one of ordinary skill in the art to implement applicants' recited steps when processing synthetic fabric scrap to achieve a higher quality recycled synthetic fiber based sorbent material.

Applicants thus respectfully request the Examiner to withdraw the rejection of Claims 67 and 70, or provide a reference that teaches that the amount of flags and large pieces of synthetic fabric that have not been reduced into fiber should be reduced when synthetic fabric scrap is being processed to provide a sorbent material comprising a majority of recycled synthetic fibers.

1 Claims Rejected under 35 U.S.C § 103 over Mendes in View of JP '187, DE '899 and Mesek

2 The Examiner has rejected Claims 58, 59, and 63 as being obvious over Mendes in view of
3 JP '187 and O'Donnell, further in view out of U.S. Patent No. 4,045,833 (Mesek). The Examiner
4 notes that the combination of Mendes in view of JP '187 and further in view of O'Donnell does not
5 teach employing both long and short fibers in a non-woven fabric to enhance the strength structural
6 stability and integrity of the fabric, but asserts that Mesek discloses using long and short fibers in
7 such a manner. The Examiner concludes that it would have been obvious to one of ordinary skill in
8 the art to combine the teachings of Mendes and JP '187 with O'Donnell and Mesek to achieve an
9 equivalent of what applicants recite in these claims. Applicants respectfully disagree for the
10 following reasons.

11 Claims 58, 59, and 63 are each ultimately dependent upon Claim 57. As discussed above in
12 detail, the combination of Mendes, JP '187, and O'Donnell does not support a case of obviousness,
13 and Mesek provides no additional disclosure that would support this rejection. Claim 57 is therefore
14 patentable over these references. Because dependent claims are patentable for at least the same
15 reasons as the claims upon which they depend, each claim dependent upon Claim 57 is patentable for
16 at least the same reasons noted above. Accordingly, the rejection of Claims 58, 59, and 63 as being
17 obvious in view of the above cited combination of references should be withdrawn.

18 Secondary Considerations Raised to Traverse the Rejections under 35 U.S.C. § 103

19 As indicated in MPEP § 2141, objective evidence of secondary considerations, such as
20 unexpected results, commercial success, long felt need, failure of others to solve that need, copying
21 by others, licensing, and skepticism of experts regarding an available solution to the problem are
22 relevant to the issue of obviousness and must be considered in every case in which they are present.
23 When evidence of any of these secondary considerations is submitted, the Examiner must evaluate
24 the evidence.

25 In addition to the above discussion, which points out that the cited art fails to support rejection
26 of applicants' claims as obvious over the cited art, applicants previously submitted a Declaration by
27 Jerry Brownstein that provides objective evidence that the present invention meets a long felt need.
28 Applicants' declaration provides evidence that the textile industry regularly disposes of synthetic
29 fabric/synthetic fibers as solid waste because the known economic uses for such material, primarily
30 the manufacture of non-woven sound deadening mats for automobiles, exceeds the supply of such

1 material. Apparently, O'Donnell's sorbent material, which requires coating fibers with a resin, has
2 not been accepted by the industry, and the surplus of reprocessed fibers has not appreciably
3 diminished. Indeed, it appears that O'Donnell's technique is primarily directed at reusing a waste left
4 over from producing acoustic panels from shoddy (see column 6, lines 32-45) as an absorbent (noting
5 that acoustic panels are already made from shoddy), rather than representing a new use for shoddy.
6 Thus, there currently exists a long felt need for alternative uses of recycled synthetic fibers, and the
7 previously submitted Declaration is relevant in showing that applicants' claims are NOT obvious, but
8 instead, are patentable.

9 Patentability of Newly Added Claims 91-95

10 New Claim 91 recites that the step of sorting controls the amount of natural fibers to less than
11 about 4% (applicants' specification describes an exemplary product as comprising about 96%
12 synthetic fibers and about 4% natural fibers). The cited art does not teach or suggest limiting the
13 amount of natural fiber to such a level.

14 New dependent Claims 92-95 recite that the sorting and shredding steps are configured to
15 achieve specifically defined mixtures of fibers. The mixtures of fibers specifically defined in these
16 claims correspond to mixtures recited in the claims allowed in the parent application, U.S. Patent
17 No. 6,632,501, and are patentable for at least the same reasons, since the art does not teach or suggest
18 these mixtures.

19 In view of the amendments and the remarks submitted above, it is clear that all of the claims
20 in the application define patentable subject matter that is neither anticipated nor obvious in view of
21 the prior art cited. For this reason, the Examiner is requested to issue the present application without
22 delay. If there are any questions that might be addressed by a telephone interview, the Examiner is
23 invited to telephone applicants' undersigned attorney, at the number listed below.

24 Respectfully submitted,

25
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